

REMARKS

The present application has been reviewed in light of the Office Action dated September 13, 2010. Claims 1 and 5-9 are presented for examination, of which Claims 1, 8, and 9 are in independent form. Claims 1, 8, and 9 have been amended to define aspects of Applicants' invention more clearly. Support for the claim amendments is found in the original disclosure, for example, in Figs. 1-6, 12 and 13 and the accompanying disclosure, and therefore, no new matter has been entered. Favorable reconsideration is requested.

Formal Objection and Rejection

Claims 1, 8, and 9 are objected to because of the use of the term "a frame of interest" and its allegedly inconsistent use. In response, while not conceding the propriety of the objection, these claims have been amended to delete the phrase "frame of interest" and to address the points raised in the Office Action. Therefore, Applicants respectfully request that the objection be withdrawn.

Claim 9 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter and the Office Action provides specific suggestions for overcoming the rejection. In response, while not conceding the propriety of the rejection, this claim has been amended as suggested in the Office Action. Applicants submit that as amended, this claim now even more clearly satisfies 35 U.S.C. 101. Therefore, Applicants respectfully request that the rejection be withdrawn.

Rejections

Claims 1, 2, 4-6, 8, 9, 11-15, and 17-19 are rejected under 35 U.S.C 103(a) as being unpatentable over Fukunaga et al (US Patent No. 6,169,821), in view of Tong et al.(US Patent

No. 5,982,435) and Kishi (US Patent Publication No. 2002/0031182). Claim 7 is rejected under 35 U.S.C 103(a) as being unpatentable over the citation to Fukunaga et al. in view of the citations to Tong et al., Kishi, and Islam et al. (US Patent No. 6,697,521).

In response, while not conceding the propriety of the rejections, independent Claims 1, 8, and 9 have been amended. Applicants submit that as amended, these claims are allowable for the following reasons.

Independent Claim 1 relates to a moving image coding apparatus that sequentially inputs and codes image data of frames constituting a moving image. The apparatus comprises mode selection, storage, segmentation, computation, transformation, code-data-generating, adjusting, decoding, and output units. The storage unit stores a frame image. The transformation unit executes discrete wavelet transformation for the block obtained by the computation unit to obtain spatial frequency component data. The code data generating unit encodes the spatial frequency component data for each bitplane to generate code data for each bitplane. The adjusting unit adjusts a code data amount by discarding code data corresponding to bitplanes from a least significant bit position to a predetermined bit position. The output unit outputs remaining code data from the adjusting unit as the code data of the segmented block.

Claim 1 has been amended to recite that the mode selection unit adaptively selects, for each frame, either a first coding mode or a second coding mode, where the first coding mode is of coding a frame by referring to another frame using an inter-frame coding method and the second coding mode is of coding a frame without referring to another frame using an intra-frame coding method.

Claim 1 has been further amended to recite that the storage unit stores a frame image as a reference frame to be referred in the first coding mode.

Claim 1 has also been amended to recite that the computation unit (i) extracts, from the reference frame stored in the storage unit, predicted data for a segmented block image of the current input frame obtained by the segmentation unit and outputs a block obtained by subtracting the predicted data from the segmented block image, if the mode for the current input frame selected by the mode selection unit is the first coding mode, or (ii) outputs the segmented block image of the current input frame obtained by the segmentation unit, if the mode of the current input frame selected by the mode selection unit is the second coding mode.

Claim 1 has further been amended to recite that the decoding unit, only when the mode selection unit selects the second coding mode for the input current frame, performs bit-shifting of the code data of the current input frame by a number of discarded bitplanes by the adjusting unit, decodes the bit-shifted code data of the current input frame, and stores the decoded image of the current input frame as the reference frame into the storage unit.

By this arrangement, the deterioration of a moving image played back by a decoder due to the accumulation of errors for each frame in a Group of Pictures can be prevented when a moving image is encoded using both of an intra-frame coding method and an inter-frame coding method using wavelet transformation and the code amount of the moving image is adjusted by discarding encoded data in units of a bitplane.

In contrast, the citations to Fukunaga et al., Tong et al., Kishi, and Islam are not understood to disclose or suggest a decoding unit that prevents the deterioration of a moving image played back by the decoder due to the accumulation of errors for each frame in a Group of Pictures when a moving image can be encoded using both of an intra-frame coding method and an inter-frame coding method using wavelet transformation and the code amount of the moving image is adjusted by discarding encoded data in units of a bitplane.

Therefore, these citations are not understood to disclose or suggest a) a mode selection unit that adaptively selects, for each frame, either a first coding mode or a second coding mode, where the first coding mode is of coding a frame by referring to another frame using an inter-frame coding method and the second coding mode is of coding a frame without referring to another frame using an intra-frame coding method, b) a computation unit that (i) extracts, from the reference frame stored in the storage unit, predicted data for a segmented block image of the current input frame obtained by the segmentation unit and outputs a block obtained by subtracting the predicted data from the segmented block image, if the mode for the current input frame selected by the mode selection unit is the first coding mode, or (ii) outputs the segmented block image of the current input frame obtained by the segmentation unit, if the mode of the current input frame selected by the mode selection unit is the second coding mode, and c) a decoding unit that, only when the mode selection unit selects the second coding mode for the input current frame, performs bit-shifting of the code data of the current input frame by a number of discarded bitplanes by the adjusting unit, decodes the bit-shifted code data of the current input frame, and stores the decoded image of the current input frame as the reference frame into the storage unit, as recited by amended Claim 1.

Since amended Claim 1 is believed to recite at least one feature not disclosed or suggested by the citations to Fukunaga et al., Tong et al., Kishi, and Islam, Applicants submit that the Office has not yet satisfied its burden of proof to establish a *prima facie* case of obviousness against amended Claim 1. Therefore, Applicants respectfully request that the rejection of amended Claim 1 be withdrawn. And because corresponding method and medium Claims 8 and 9 have been amended in a corresponding manner, they are submitted to be allowable for corresponding reasons. Therefore, Applicants respectfully request that the rejection of amended Claims 8 and 9 be withdrawn.

The other rejected claims in the present application depend from one or another of independent Claims 1, 8, and 9 and are submitted to be patentable for at least the same reasons. Because each dependent claim also is deemed to define an additional aspect of the invention, however, individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and an early passage to issue of the present application.

No petition to extend the time for response to the Office Action is deemed necessary for this Amendment. If, however, such a petition is required to make this Amendment timely filed, then this paper should be considered such a petition and the Commissioner is authorized to charge the requisite petition fee to Deposit Account 06-1205.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (202) 520-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,

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